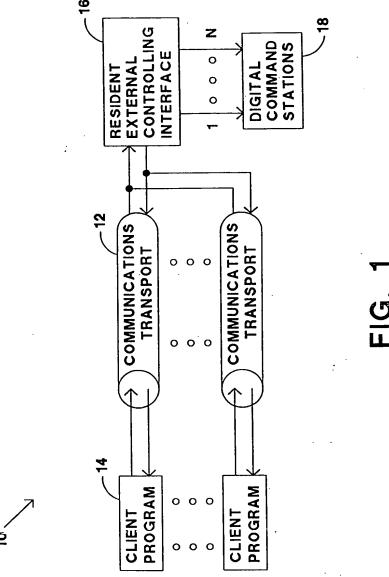
Drawings - Sheet 1 of 13 Invention: MODEL TRAIN CONTROL SYSTEM DOCKET No. 7431.0063

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Kevin L. Russell, Reg. No. 38,292 Attorney:

Inventors: Katzer



Drawings - Sheet 2 of 13 Invention: MODEL TRAIN CONTROL SYSTEM DOCKET No. 7431.0063

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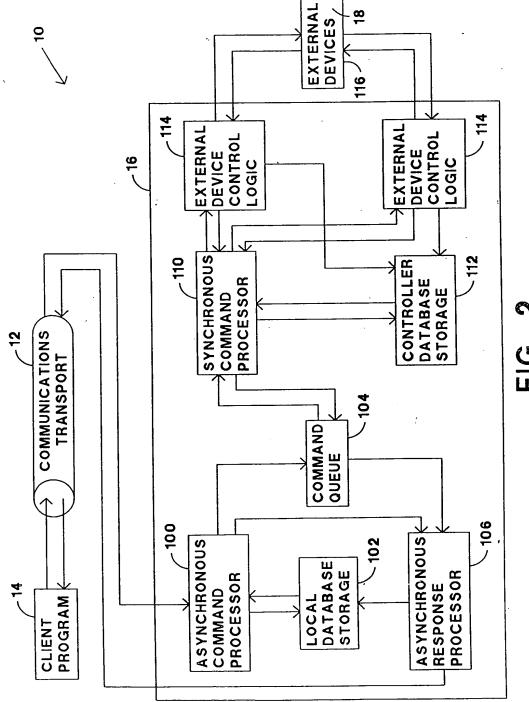
Kevin L. Russell, Reg. No. 38,292

Inventors:

Filed:

Katzer

Attorney: Telephone: (503) 227-5631



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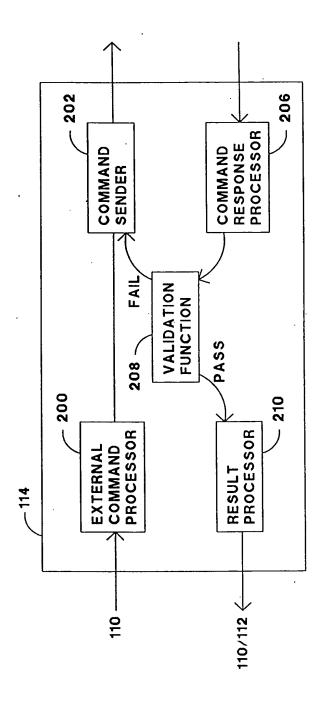
Drawings - Sheet 3 of 13 Invention: MODEL TRAIN CONTROL SYSTEM DOCKET No. 7431.0063

Filed:

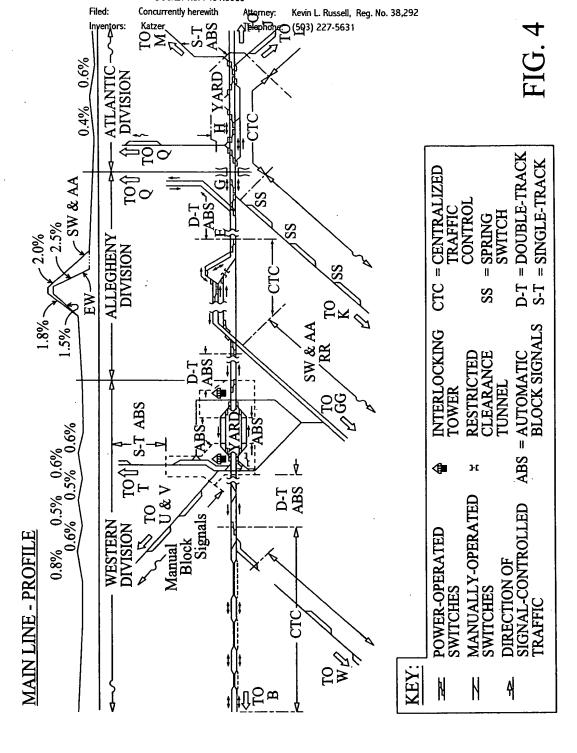
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Drawings - Sheet 4 of 13 Invention: MODEL TRAIN CONTROL SYSTEM DOCKET No. 7431.0063



Drawings - Sheet 5 of 13 Invention: MODEL TRAIN CONTROL SYSTEM DOCKET No. 7431.0063

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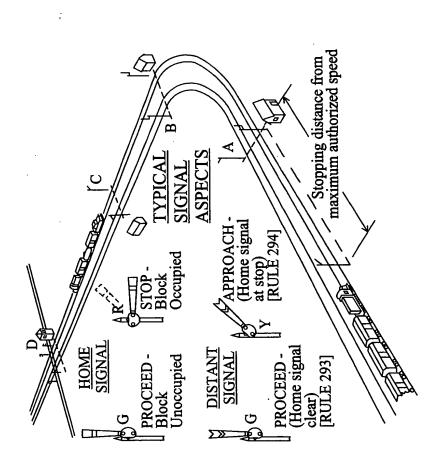
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Att

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Inventors:

Katzer



Drawings - Sheet 6 of 13 Invention: MODEL TRAIN CONTROL SYSTEM DOCKET No. 7431.0063

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TRACK RELAY COIL ENERGIZED CURRENT THROUGH RAILS SIGNAL BATTERY TRACK CIRCUIT LENGTH UP TO ONE MILE LEAKAGE CURRENT BETWEEN RAILS BLOCK UNOCCUPIED TRACK BATTERY

† TRAIN EXCEEDING LIMITED SPEED MUST IMMEDIATELY REDUCE TO THAT SPEED

* TRAIN EXCEEDING MEDIUM SPEED MUST IMMEDIATELY REDUCE TO THAT SPEED

G = GREEN

R = RED Y = YELLOW

Drawings - Sheet 7 of 13 Invention: MODEL TRAIN CONTROL SYSTEM DOCKET No. 7431.0063

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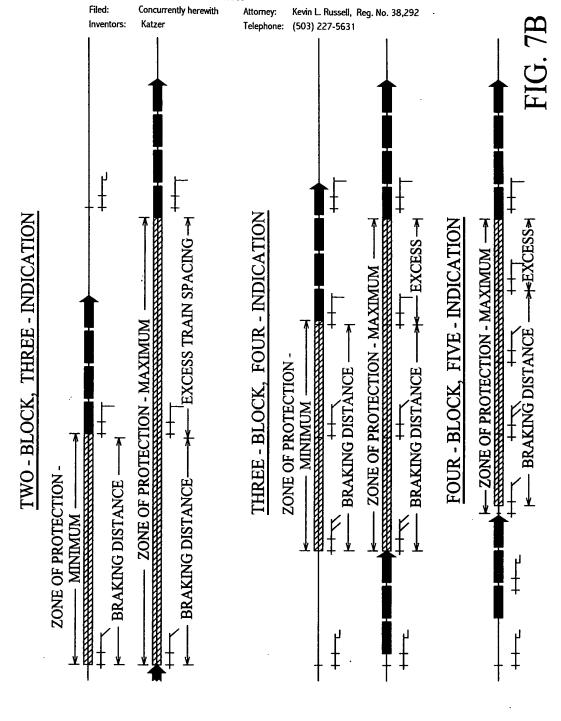
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Attorney: Kevin L. Russell, Reg. No. 38,292

- EXAMPLE	
BLOCK SIGNAL PRACTICE	•

INDICATION	STOP AND PROCEED	PROCEED PREPARED TO STOP AT NEXT SIGNAL *	PROCEED PREPARED TO STOP AT SECOND SIGNAL *	PROCEED PREPARED TO STOP AT THIRD SIGNAL [†]	PROCEED
ASPECT	KER T	X + +	***	Z Z Z	3++
NAME	STOP MARKER PLATE -	APPROACH	APPROACH MEDIUM	ADVANCE APPROACH	CLEAR

Drawings - Sheet 8 of 13 Invention: MODEL TRAIN CONTROL SYSTEM DOCKET No. 7431.0063



Drawings - Sheet 12 of 13 Invention: MODEL TRAIN CONTROL SYSTEM DOCKET No. 7431.0063

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		SEMAPHORE (UPPER QUADRANT)	COLOR LIGHT	SEARCH- LIGHT	POSITION LIGHT (MODIFIED)	COLOR POSITION LIGHT
CLEAR	PROCEED AT NORMAL		→	5	¥ ¥	M €
	SPEED (RULE 281)	<u>5</u>			>-)——-
APPROACH	APPROACH PREPARED TO STOP AT NEXT SIGNAL	A STATE OF THE STA	√————————————————————————————————————	≯	★ ★ ♦	**************************************
	(RULE 285)	- ·	=		-	
STOP AND PROCEED	STOP AND PROCEED AT RESTRICTED SPEED		₩ W	₩ W W	₩.	R R
	(RULE 509)	₩	þ)—	≻ ⊚ □	
ABSOLUTE	STOP	~	√ €	₩(-	© DARK
SIOF	(RULE 292)	N N	<u>⊶</u>	₹ ⊝−(() R R	R R
R = RED $Y = YELLOW$		R	5 —	○)—)—
G = GREEN W = LUNER WHITE	/HITE					FIG

Drawings - Sheet 13 of 13 Invention: MODEL TRAIN CONTROL SYSTEM DOCKET No. 7431.0063

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	₽ / C	1000			
B DIRECTION OF APPROACH	IF CLEARED FOR DIVERGING ROUTE THROUGH NO. 12 CROSSOVER INTO TRACK (4) (SLOW SPEED = 15 MPH)	IF CLEARED FOR DIVERGING ROUTE THROUGH NO. 16 CROSSOVER TO TRACK (3) (MEDIUM SPEED = 30 MPH)	IF CLEARED FOR DIVERGING ROUTE THROUGH HIGH-SPEED TURNOUT TO TRACK (2) (LIMITED SPEED = 50 MPH)	IF CLEARED FOR ROUTE STRAIGHT THROUGH TO TRACK (1) (NORMAL SPEED)	ASPECTS OF SIGNALS AT:
	Y G R	G Y	R R G	ଅନ୍ଦର	A
	Y G	Y G R	99 Y	ନନ୍ଦ	В
9A	GRR	RGR	ଦଦନ	ଅନ୍ଦର	C

Drawings - Sheet 9 of 13 Invention: MODEL TRAIN CONTROL SYSTEM DOCKET No. 7431.0063

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ASPECT	NAME	INDICATION
D K K	CLEAR	PROCEED AT NORMAL SPEED
RRY	APPROACH	PROCEED APPROACHING NEXT SIGNAL PREPARED TO STOP; TRAIN EXCEEDING MEDIUM SPEED MUST IMMEDIATELY REDUCE TO THAT SPEED
Y G	APPROACH SLOW	PROCEED APPROACHING NEXT SIGNAL AT SLOW SPEED; TRAIN EXCEEDING MEDUM SPEED MUST IMMEDIATELY REDUCE TO THAT SPEED.
G R	ADVANCE APPROACH MEDIUM	PROCEED APPROACHING SECOND SIGNAL AT MEDIUM SPEED.
Y G R	APPROACH MEDIUM	PROCEED APPROACHING NEXT SIGNAL AT MEDIUM SPEED.
G G	APPROACH LIMITED	PROCEED APPROACHING NEXT SIGNAL AT LIMITED SPEED
R G R	MEDIUM CLEAR	PROCEED; MEDIUM SPEED WITHIN INTERLOCKING LIMITS
& D \$	LIMITED CLEAR	PROCEED; LIMITED SPEED WITHIN INTERLOCKING LIMITS
a S S	SLOW CLEAR	PROCEED; SLOW SPEED WITHIN INTERLOCKING LIMITS

FIG. 9B

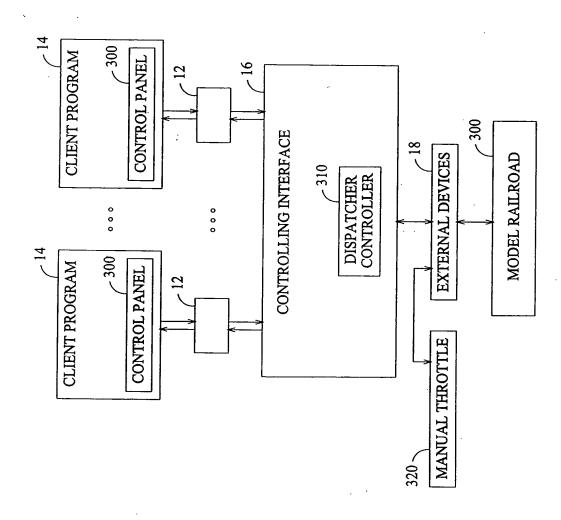
* May be replaced with triangular marker plate below second signal head (indicating "limited speed") if layout does not include medium speed routes

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Attorney: Kevin L. Russell, Reg. No. 38,292

Filed: Inventors:

Katzer



Drawings - Sheet 11 of 13

Invention: MODEL TRAIN CONTROL SYSTEM DOCKET No. 7431.0063

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Attorney: Kevin L. Russell, Reg. No. 38,292

Inventors:

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COMMAND QUEUE

PRIORTTY	TYPE	COMMAND
5	Α.	INCREASE LOCO 1 BY 2
37	В	OPEN SWITCH I
15	В	CLOSE SWITCH 1
26	В	OPEN SWITCH 1
6	Α	DECREASE LOCO 2 BY 5
176	В	CLOSE SWITCH 6
123	C	TURN ON LIGHT 5
85	D	QUERY LOCO 3
5	A	INCREASE LOCO 2 BY 7
9	Α	DECREASE LOCO 1 BY 2
) 0	E	MISC
37	D	QUERY LOCO 2
215	D	QUERY SWITCH 1
216	C.	TURN ON LIGHT 3
227	D	QUERY SWITCH 5
225	C	TURN ON LOCO 1 LIGHT
0	D	QUERY ALL
255	A	STOP LOCO 1

FIG. 11